

CLAIMS

1. A detection port type probe characterized by comprising at least an electroconductive supporting member having an opening formed on at least a part of a surface thereof facing to plasma and a dielectric member having a probe electrode formed on one side thereof positioned at the opening of the electroconductive supporting member.

2. The detection port type probe according to claim 1, characterized by connecting an impedance matching unit to the probe electrode.

3. The detection port type probe according to claim 1, characterized in that the dielectric member is made from an optically transparent glass.

4. The detection port type probe according to claim 3, characterized in that the probe electrode is made from an optically transparent electroconductive substance.

5. The detection port type probe according to claim 1, characterized in that the opening formed on the electroconductive supporting member has a function of a viewing port.

6. A plasma monitoring device using the detection port type probe defined in claim 1, characterized in that a voltage waveform measuring unit for measuring a voltage waveform is disposed at an output end of the detection port type probe.

7. The plasma monitoring device according to claim 6,

characterized by comprising a process monitoring mechanism for detecting a stability of plasma by detecting a degree of nonuniformity among cyclical waveform changes of the voltage waveform detected by the voltage waveform measuring unit.

8. The plasma monitoring device according to claim 6, characterized by comprising an anomalous discharge monitoring mechanism for detecting anomalous discharge of plasma from the changes in voltage waveform detected by the voltage waveform measuring unit.

9. A plasma processing apparatus characterized by comprising the plasma monitoring device defined in claim 6.

10. The plasma processing apparatus according to claim 9, characterized in that the electroconductive supporting member provided with the opening is a flange constituting a viewing port of a reaction vessel, and that the dielectric member is a transparent glass plate for sealing the flange.